

REMARKS

The remaining issues regarding this application are as follows:

- The Examiner rejected Claims 1, 2, 4, 8, 9 and 11 under 35 USC §102(b) as being anticipated by Chang (U.S. Patent No. 5,719,730); and
- The Examiner rejected Claims 3, 5, 10, and 12 under 35 USC §103(a) as being unpatentable over Chang.

Applicants traverse the rejections and have amended the claims to further clarify the claimed invention. Applicants have amended independent Claim 1 to recite that *the cores have a facing surface, wherein the amount of protrusion of the insulating gap layer from the facing surface is less than or equal to about 3.5 nm*. Applicants similarly have amended independent Claim 8 to recite that *the shield layers have a facing surface, wherein the amount of protrusion of at least one of the gap layers from the facing surface is less than or equal to about 3.5 nm*. No new matter has been added (see the Specification -- page 15, lines 16-29 and page 17, lines 3-31). Applicants respectfully submit that Chang does not describe or suggest the Claims 1 and 8 as amended.

The Chang reference describes a low fringe-field and narrow write-track magnetic read-write head (see Col. 4, lines 17-18). Chang's magnetic read-write head is directed toward the removal of air bearing surface portions of the first and/or second pole layers to form the low fringe-field and narrow write-track magnetic read-write head (see Col. 4, lines 57-64). The magnetic read-write head has a first pole layer separated from a second pole layer by an insulator layer (see Col. 4, lines 27-33). The first pole layer has a first air bearing surface coplanar with and separated from a second air bearing surface of the second pole layer by the insulator layer (see Col. 4, lines 34-37). Chang does not disclose whether the insulator layer is coplanar, not coplanar, or has any other relationship with the air bearing surfaces. Accordingly, Change does not describe or suggest that the amount of protrusion of a gap layer from the facing surface is less than or equal to about 3.5 nm as recited in Claims 1 and 8. With the protrusions of the gap layer less than or equal to about 3.5 nm, a thin-film magnetic head slider collides less with a recording medium when the slider floats above the recording medium (see page 5, lines 1-5, page 15, lines 1-8, and page 17, lines 19-23). Less collisions prevents damage to the slider and to the recording medium (see page 17, lines 24-27 and page 25, line 31 to page 26, line 7).

For the foregoing reasons, Claims 1 and 8 are not anticipated by Chang. Claims 2 and 4 depend directly or indirectly upon Claim 1. Claims 9 and 11 depend directly or indirectly upon Claim 8. Hence, dependent Claims 2, 4, 9, and 11 are not anticipated by Chang for the reasons previously discussed regarding independent Claims 1 and 8. In addition, Claims 3 and 5 depend indirectly upon Claim 1. Claims 10 and 12 depend indirectly upon Claim 8. Hence, dependent Claims 3, 5, 10, and 12 are not obvious in view of Chang for the reasons previously discussed regarding independent Claims 1 and 8. Furthermore, dependent Claims 2-5 and 9-12 are allowable as claims dependent upon allowable base claims. Therefore, Applicants respectfully request the Examiner to withdraw the rejections to Claims 1-5 and 8-12.

New Claims

Applicants have added new Claims 21 and 22, which depend directly upon Claim 1 as amended. No new matter has been added (see the Specification page 7, lines 3-8). Applications respectfully request the Examiner to consider and allow new Claims 21 and 22.

SUMMARY

Pending Claims 1-5 and 8-12 as amended and new Claims 21 and 22 are patentable. Applicants respectfully request the Examiner grant early allowance of this application. The Examiner is invited to contact the undersigned attorneys for the Applicants via telephone if such communication would expedite this application.

Respectfully submitted,



Richard K. Clark
Registration No. 40,560
Attorney for Applicants

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

APPENDIX A

1. (Amended) A thin film magnetic head comprising:
an insulating gap layer provided between cores made of a magnetic material; and
a coil for inducing a recording magnetic field in the cores,
wherein the cores have a facing surface,
wherein the amount of protrusion of the insulating gap layer from the facing
surface is less than or equal to about 3.5 nm, and
wherein the gap layer comprises a SiON film.
8. (Amended) A thin film magnetic head comprising:
a magnetoresistive element capable of detecting a recording signal due to a
change in electric resistance with an external magnetic field; and
shield layers formed above and below the magnetoresistive element with gap
layers provided therebetween,
wherein the shield layers have a facing surface,
wherein the amount of protrusion of at least one of the gap layers from the facing
surface is less than or equal to about 3.5 nm, and
wherein at least one of the gap layers comprises a SiON film.
21. (New) A thin film magnetic head according to Claim 1, wherein the amount
of protrusion of the insulating gap layer from the facing surface is less than or equal to about 3
nm.
22. (New) A thin film magnetic head according to Claim 1, wherein the amount
of protrusion of at least one of the gap layers from the facing surface is less than or equal to
about 3 nm.